

# Utah Energy

## STATE ENERGY ADVISOR'S ANNUAL REPORT 2007

**UTAH STATE LEGISLATURE  
PUBLIC UTILITIES AND TECHNOLOGY INTERIM  
COMMITTEE AND  
NATURAL RESOURCES, AGRICULTURE, AND  
ENVIRONMENT INTERIM COMMITTEE  
November 14, 2007**

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# UTAH ENERGY POLICY UCA 63-53b-301

Utah will:

- Have adequate, reliable, affordable, sustainable, and clean energy resources;
- Promote development of nonrenewable resources;
- Promote development of renewable resources;
- Promote study of nuclear power;
- Promote development of resources and infrastructure reducing dependence on international energy sources;
- Pursue energy conservation, energy efficiency and environmental quality;
- Streamline regulatory processes;
- Encourage expedited federal action; and
- Provide an environment for stable consumer prices.

“Energy is a critical component in sustaining Utah’s vibrant economic growth and preserving our unparalleled quality of life. With just the right blend of ambition, brain power and diverse natural resources, Utah stands ready to lead the charge in energy efficiency, renewables and alternative energy development, and new and innovative technologies.”

*Governor Jon M. Huntsman, Jr.*

# **STATE ENERGY ADVISOR'S ANNUAL REPORT 2007**

## **OBJECTIVES OF REPORT**

- Review Utah's energy resources production and consumption;
- Identify actions and challenges to energy development, extraction, production/refining, and transportation in 2007; and
- Consider the long-term issues and trends in Utah Energy.

# **UTAH ENERGY RESOURCE EXTRACTION**

**Coal**

**Crude Oil**

**Tar Sands and Oil Shale**

**Natural Gas**

**Coalbed Methane**

# COAL PRODUCTION IN UTAH

**Production** – 10 mines (Carbon, Emery, Sevier)

- 2006                                      26,131 thousand short tons (tst)
- 2007                                      24,900 tst

**Price** (2007)                              \$23.62

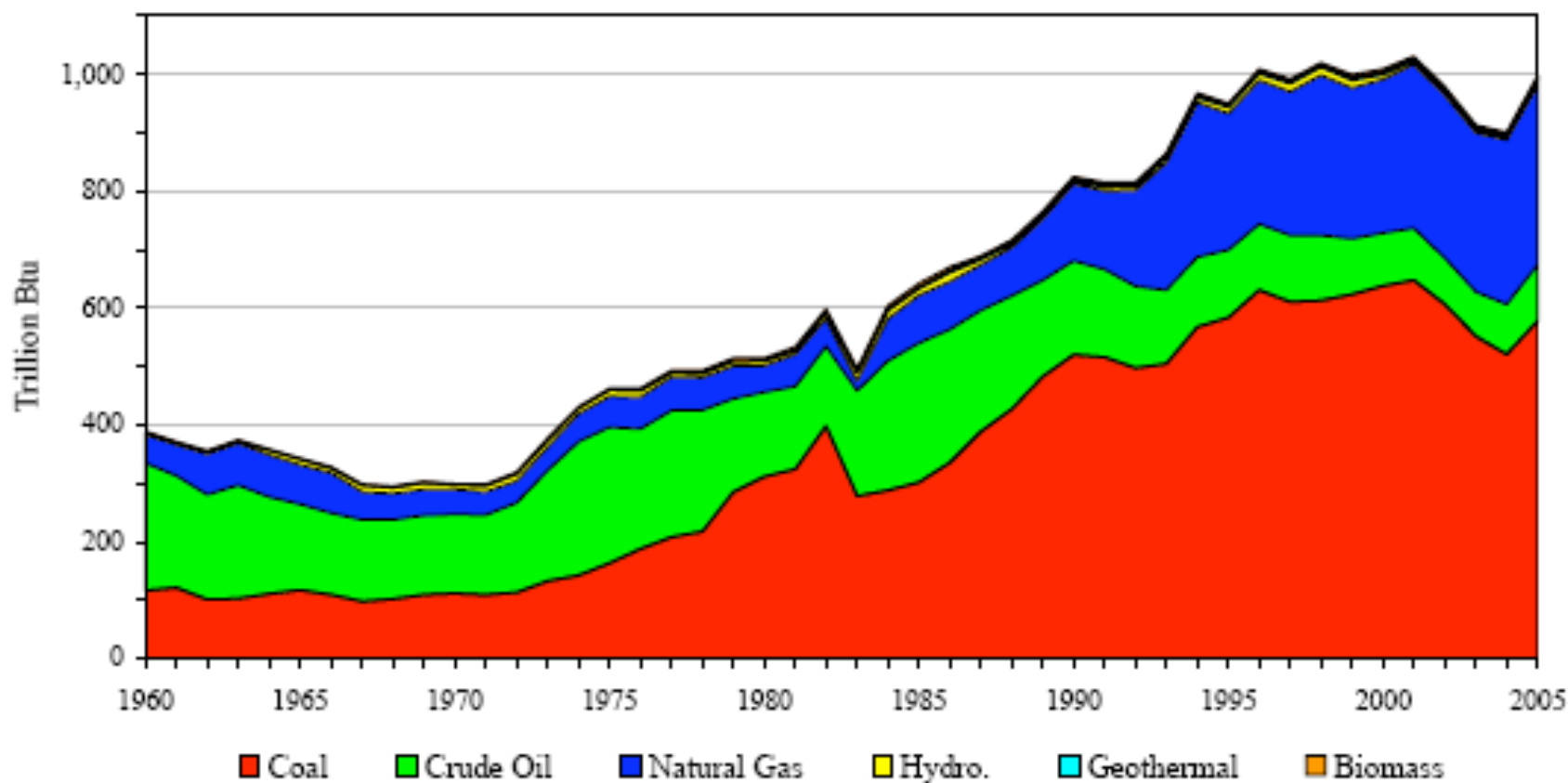
## **Coal Use**

- Electric Utility
- Industrial
- Residential/Commercial

## **Key Issues**

- Need operational carbon capture and sequestration with electricity generation (Green House Gas reduction)
- Mine safety

## Energy Production in Utah by Primary Source



**2006 In-State Coal Consumption By Electric Generators  
and Production By State  
(Thousand Short Tons)**

State	Production	Consumption	%
UT	26,018	14,684	56.2%
CO	36,322	10,813	29.8%
WY	446,687	26,068	5.8%



# CRUDE OIL PRODUCTION IN UTAH

## **Production** – By Land Ownership – Ranked 14th

Federal	7,555,727
Native American	6,257,916
State	919,469
Fee	3,191,774
Total	17,924,886

## **2007 Drilling Permits**

Oil and Gas	permits 2062
	rigs 1022

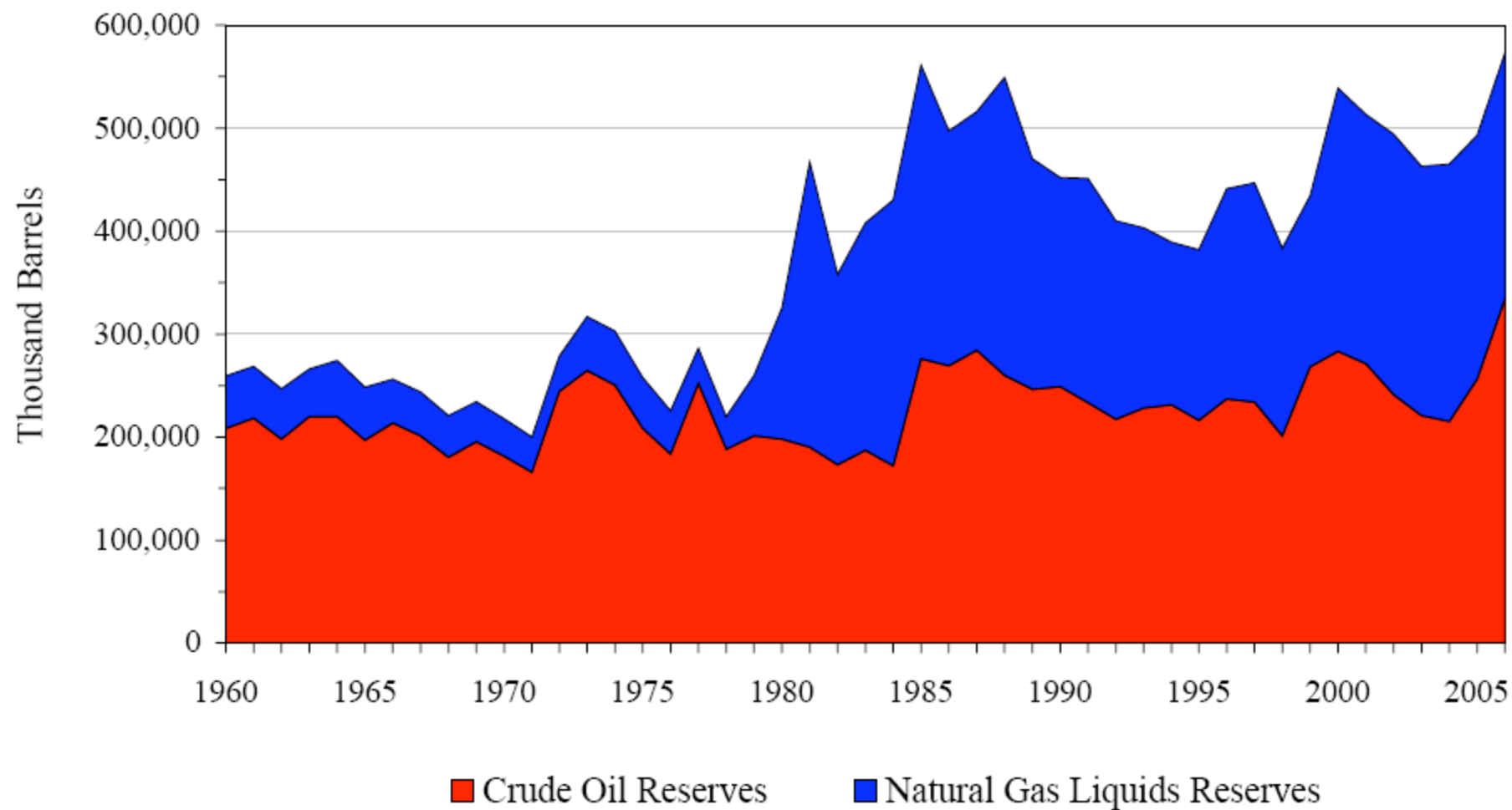
## **Crude Oil Use**

Transportation Fuel  
Industrial

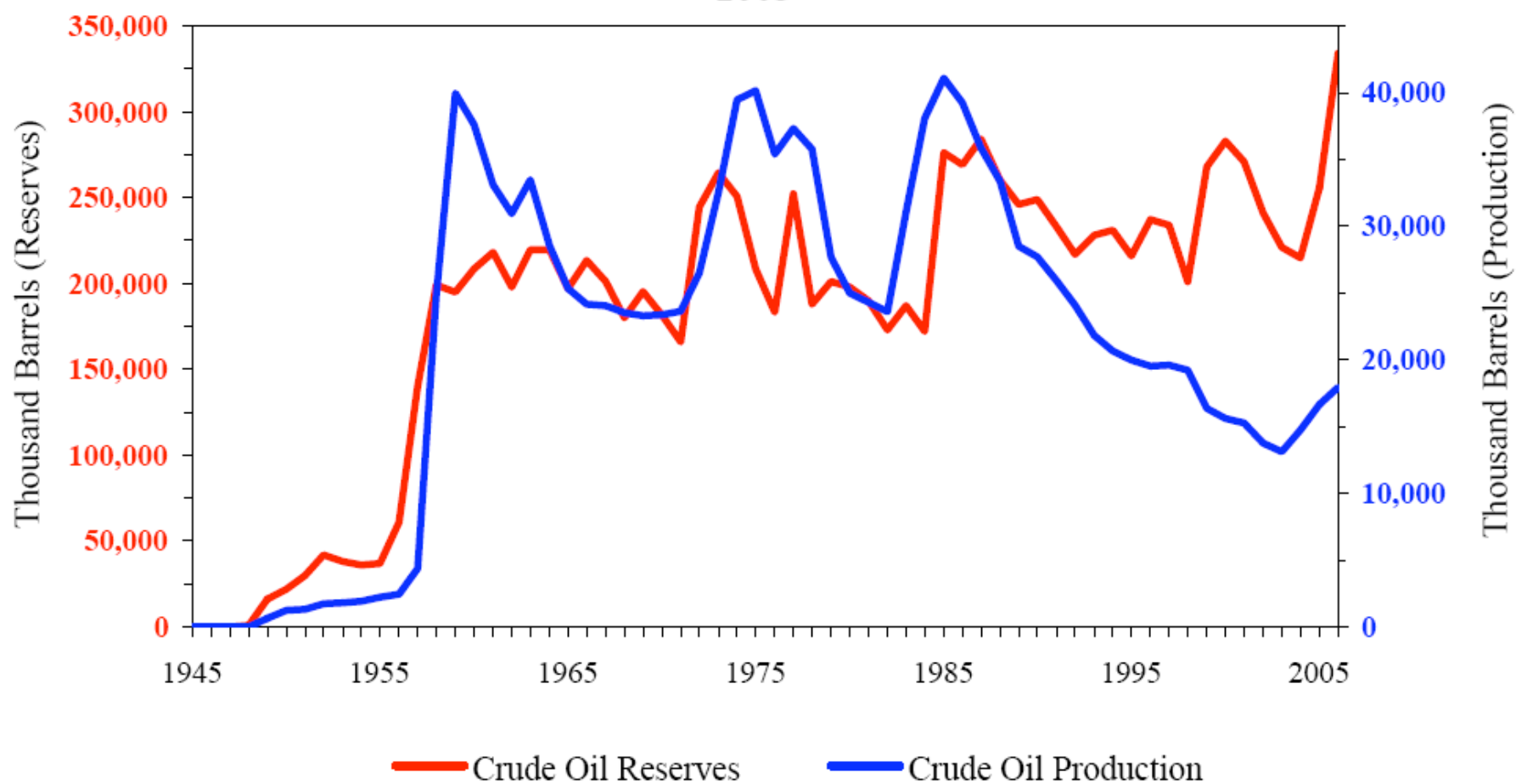
## **Key Issues**

- Price
- Reduction in Air Pollutants –
- Reduction of Green House Gasses
- Energy security

**Figure 3.1 - Proved Reserves of Crude Oil and Natural Gas Liquids in Utah, 1960-2006**



**Figure 3.2 - Utah Crude Oil Production and Total Proved Reserves, 1945-2005**



# TAR SANDS AND OIL SHALE IN UTAH

## Utilization

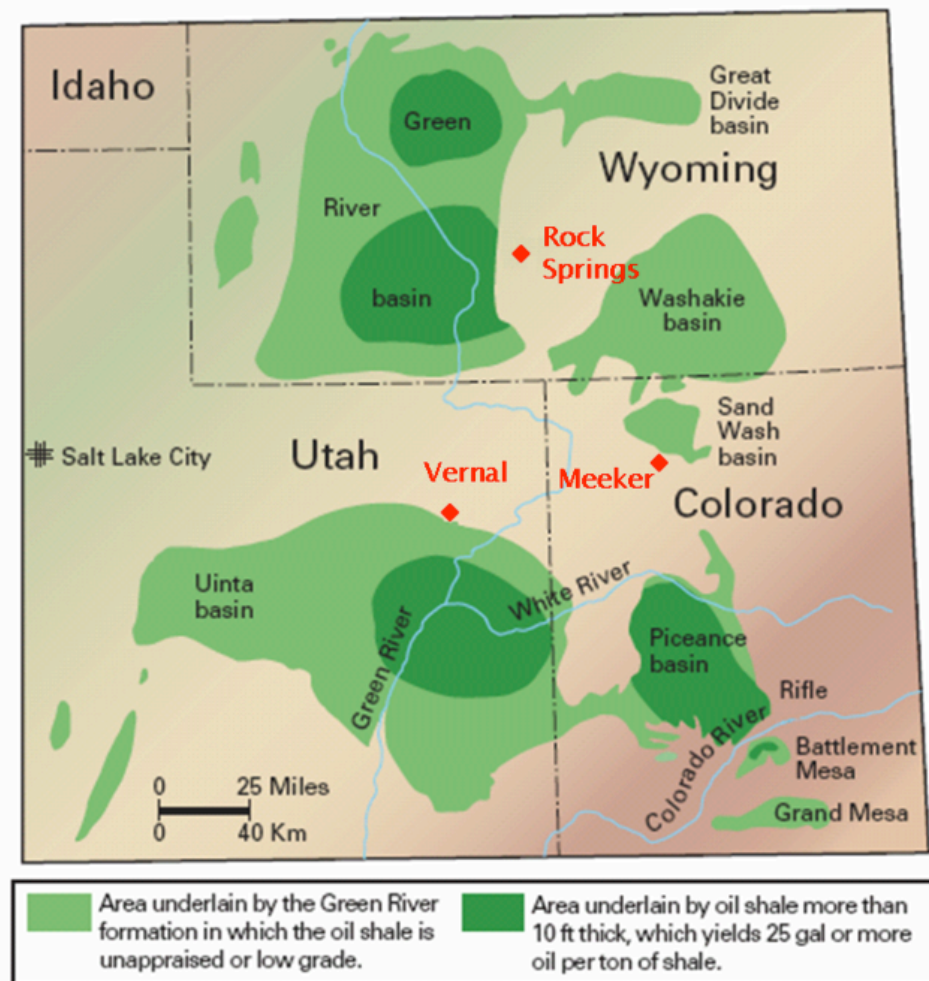
Transportation Fuel

Industrial

## Key Issues

- Leasing
- Baseline Air Quality Study
- Reduction in Air Pollutants
- Reduction of Green House Gases
- Energy Security
- Unconventional Fuels Reports – completed
- Production/Refining Technology

# Green River Formation Oil Shale Basins

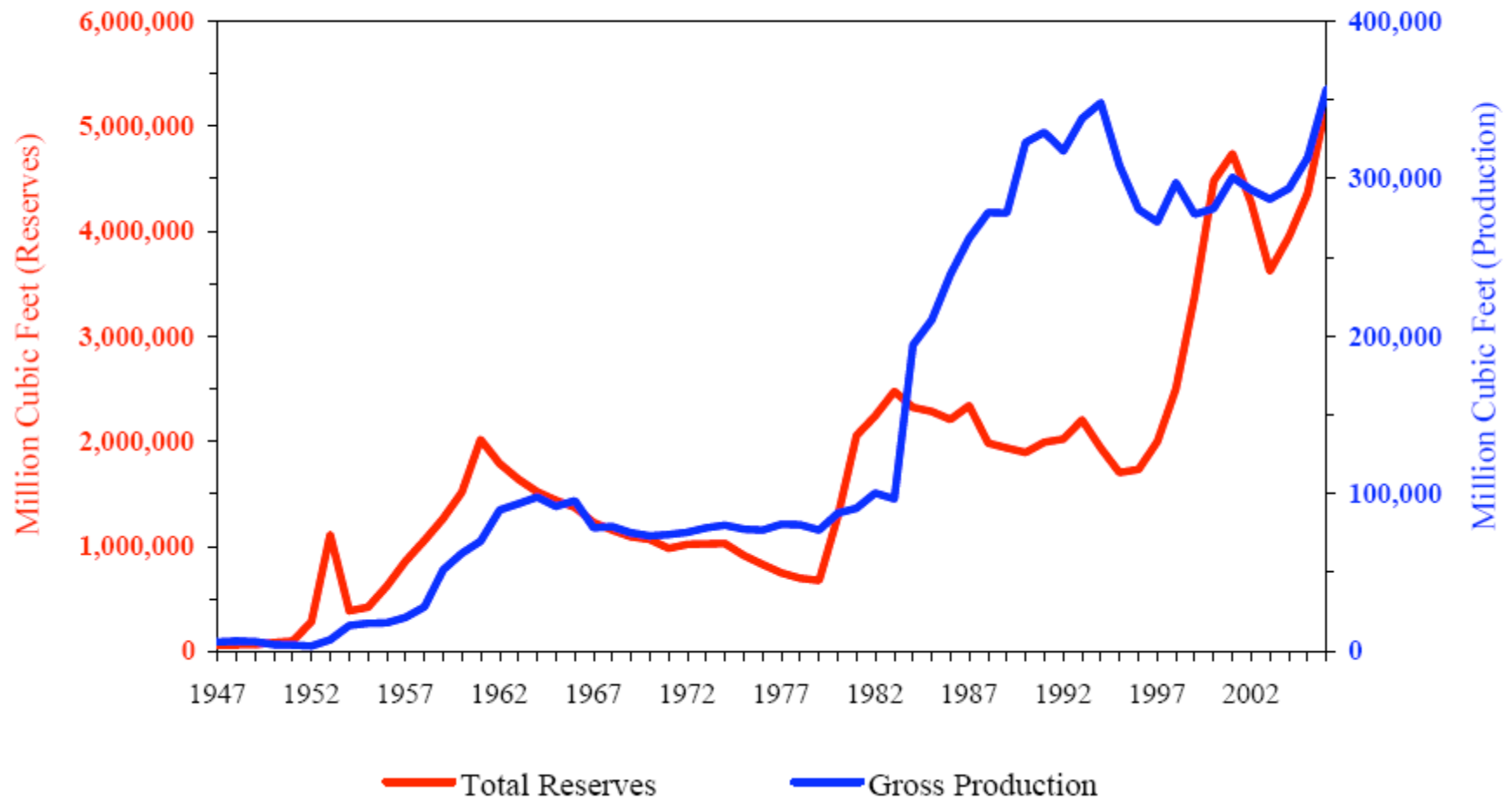


Tabet and VandenBerg, 2006

***U.S. Green River Oil Shale Resources  
(in-place)***

<b>—Colorado</b>	<b>1000 billion bbls</b>
<b>—Wyoming</b>	<b>300 billion bbls</b>
<b>—Utah</b>	<b>321 billion bbls</b>
<b>—TOTAL</b>	<b>1621 billion bbls</b>

**Figure 4.2 - Proved Reserves and Gross Production of Natural Gas in Utah,  
1947-2006**



# NATURAL GAS PRODUCTION IN UTAH

## **Production** – By Land Ownership – Ranked 11th

Federal	213,896 mcf
Native American	26,920 mcf
State	82,325 mcf
Fee	33,122 mcf
Total	356,263 mcf

## **Coalbed Methane – 2006, first production 1987**

76,705,287 mcf

## **Natural Gas Utilization**

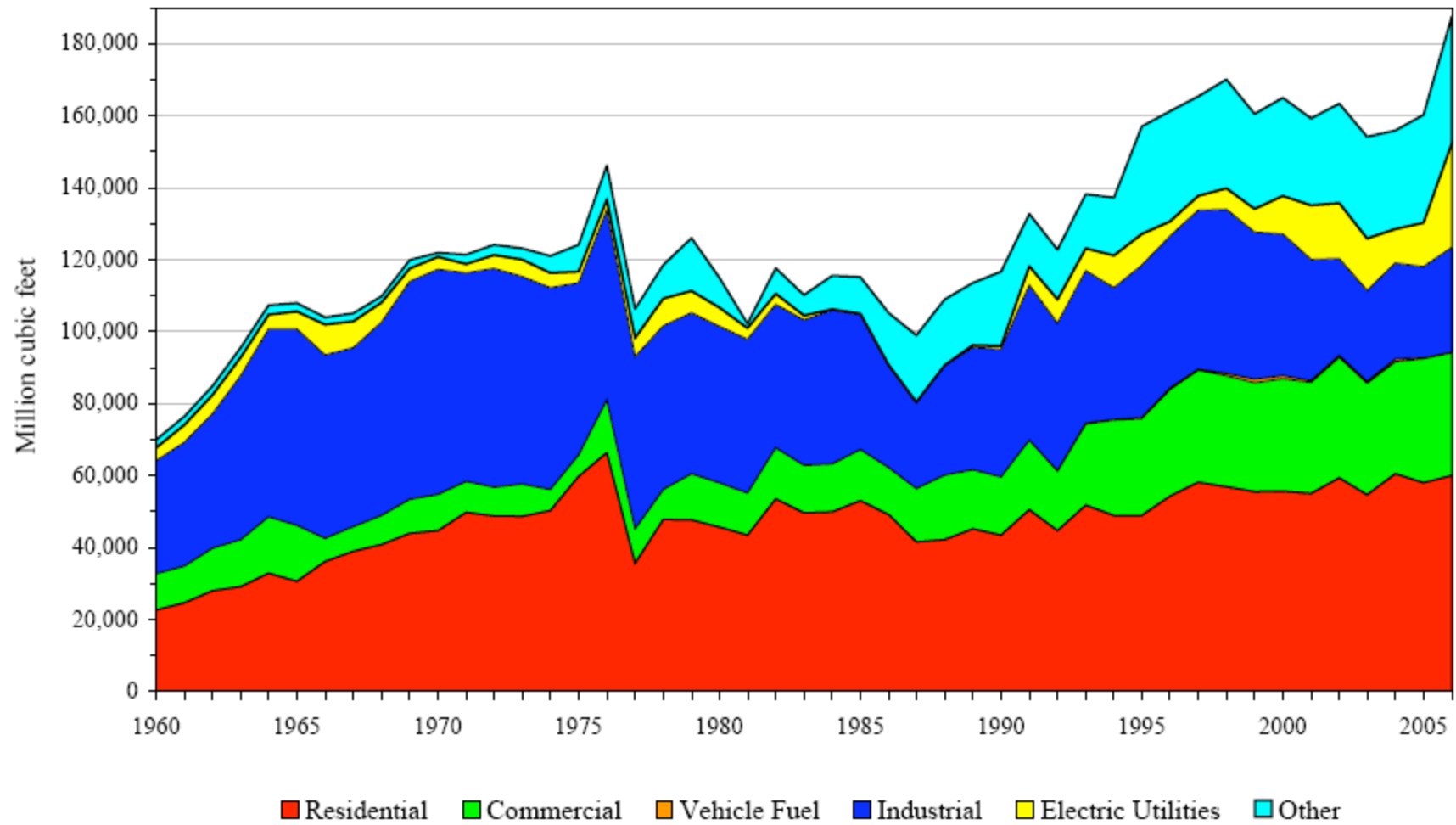
Electric Utility  
Transportation  
Industrial  
Residential/Sm Business

## **Key Issues**

- Price
- Reduction in Air Pollutants
- Reduction of Green House Gasses
- Energy security

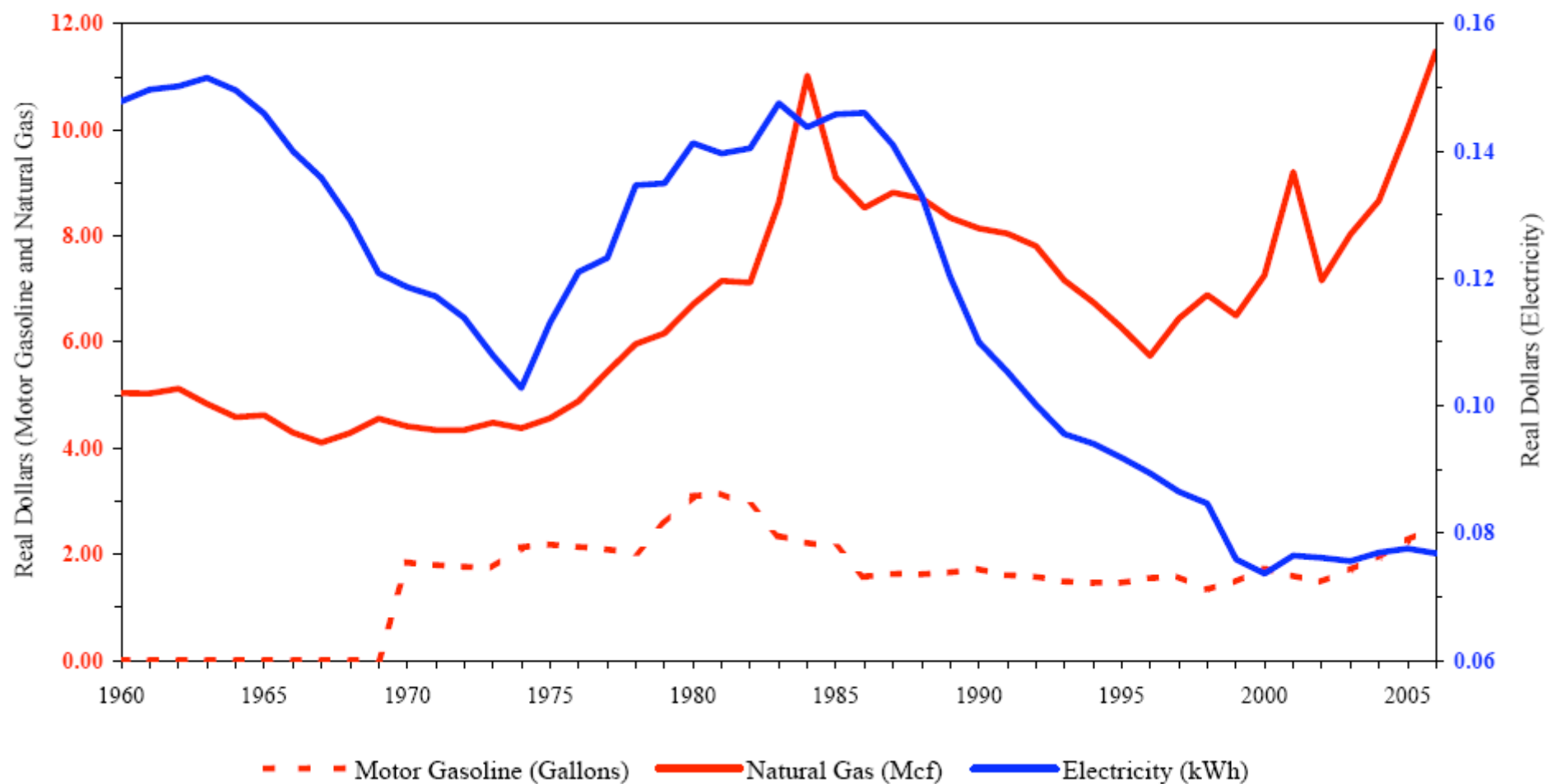


**Figure 4.8 - Consumption of Natural Gas in Utah, 1952-2006**



# TREND IN UTAH RESIDENTIAL FUEL PRICES 1960 - 2006

Figure 1.11 - Average Residential Fuel Prices in Utah, 1960-2006



# ENERGY PRODUCTION IN UTAH

## Production 2006 (Trillion Btu)

Coal	577.7 TBtu
Crude Oil	96.7 TBtu
Natural Gas	306.8 TBtu
Yellowcake	
Hydroelectric (63)	8.0 TBtu
Geothermal (1)	3.9 TBtu
Biomass (2)	4.0 TBtu
Wind (3)	957 kW
Solar (30)	506 kW

## % Production 2006

Fossil Fuels	98.4 %
Renewables	1.6 %

## Proposed Production

Biomass (2)	3,950 kW
Geothermal (3)	153,000 kW
Solar (2)	28 kW
Wind (6)	493,105 kW
Hydroelectric (1)	60,000 kW

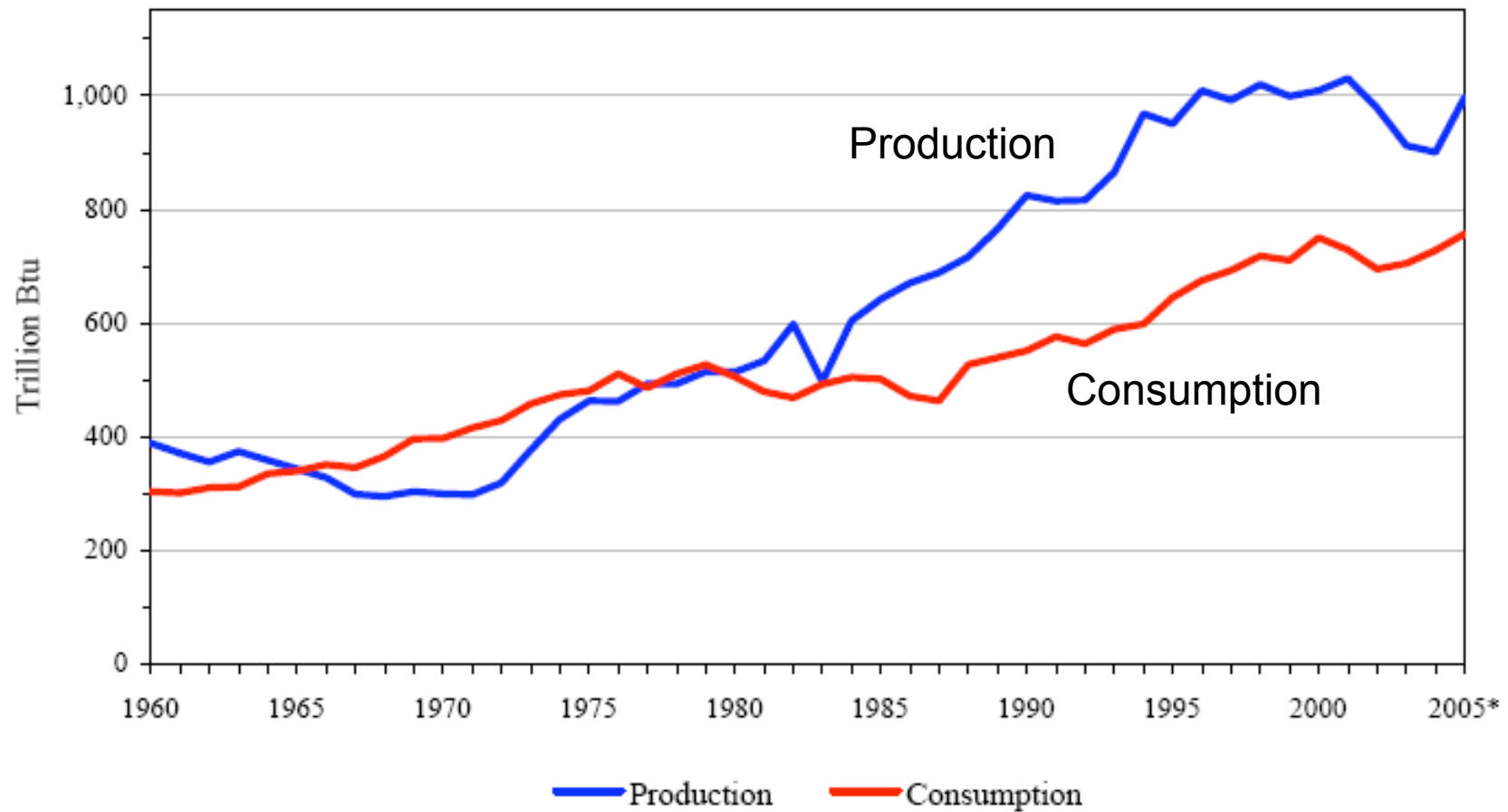


# UTAH ENERGY STRATEGY

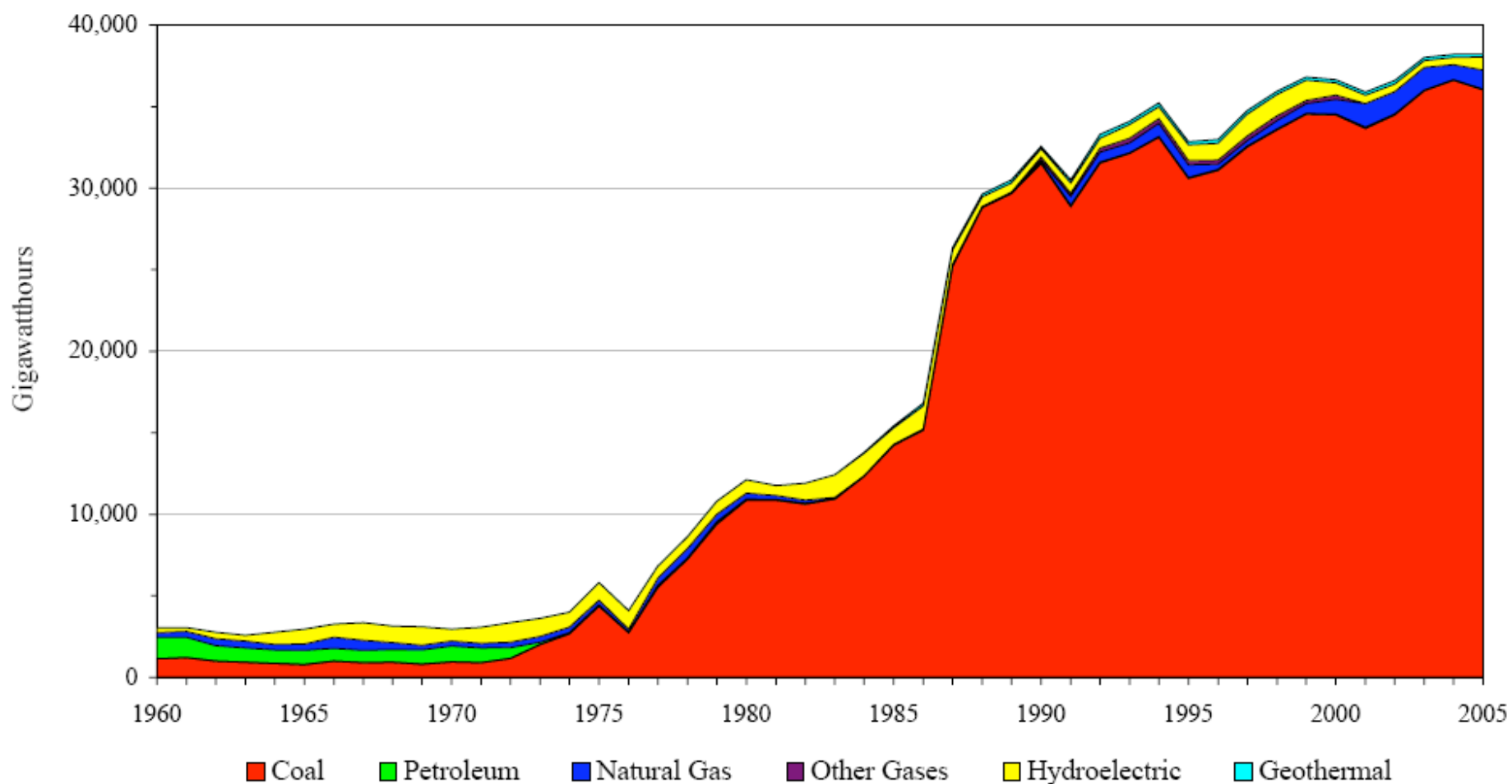
- Diversify Energy Portfolio of Renewables and Nonrenewables
- Improve Energy Efficiency
- Improve Environmental Quality and Reduce Greenhouse Gases
- Develop Transmission and Transportation
- Encourage Energy Security
- Promote Economic Development
- Maintain Quality of Life



# Utah Energy Production: Production and Consumption



## Net Generation of Electricity in Utah by Source



# Governor Huntsman's Energy Efficiency Target:

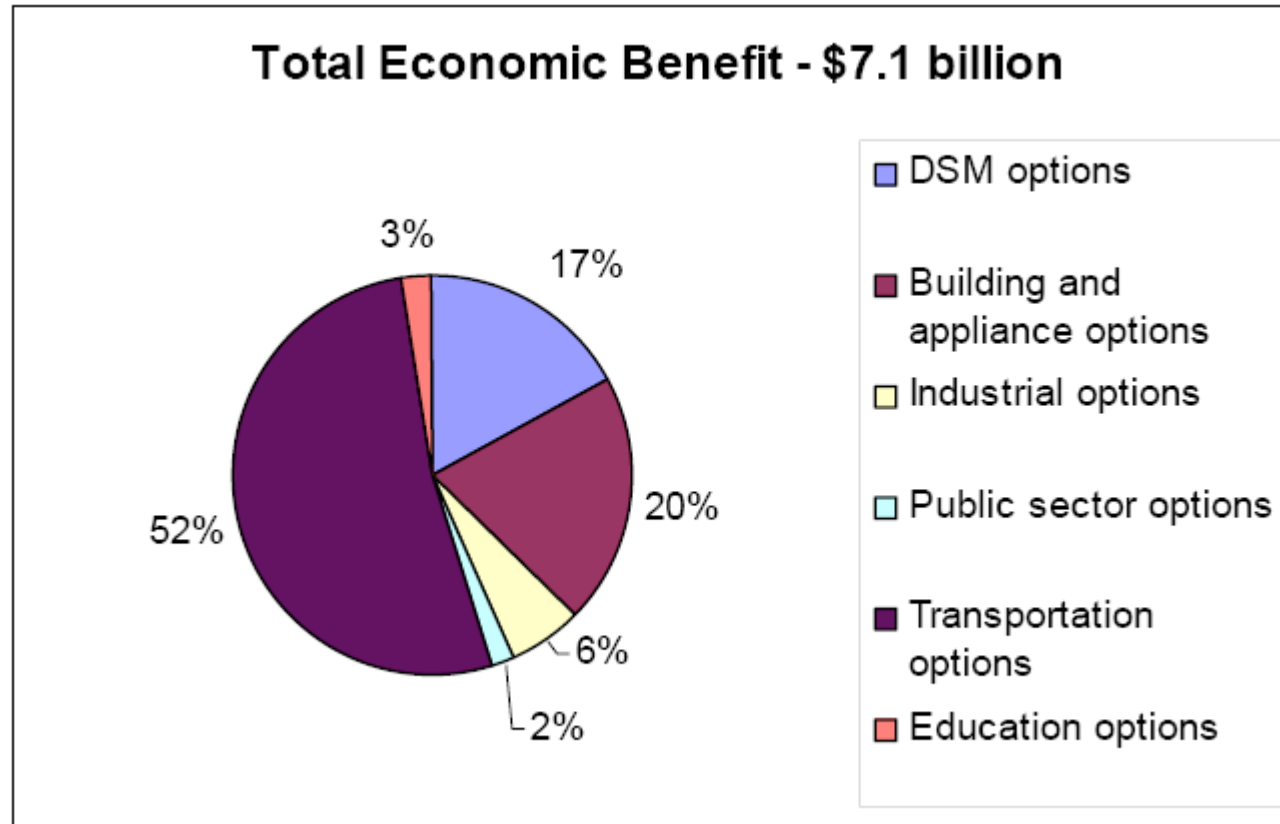
Increase Energy Efficiency by  
20% by 2015

(from 2005 Baseline)



Increasing Energy Efficiency by 20%  
is equivalent to  
Reducing Energy Use by 16.7%

# Net Economic Benefit of Energy Efficiency Options

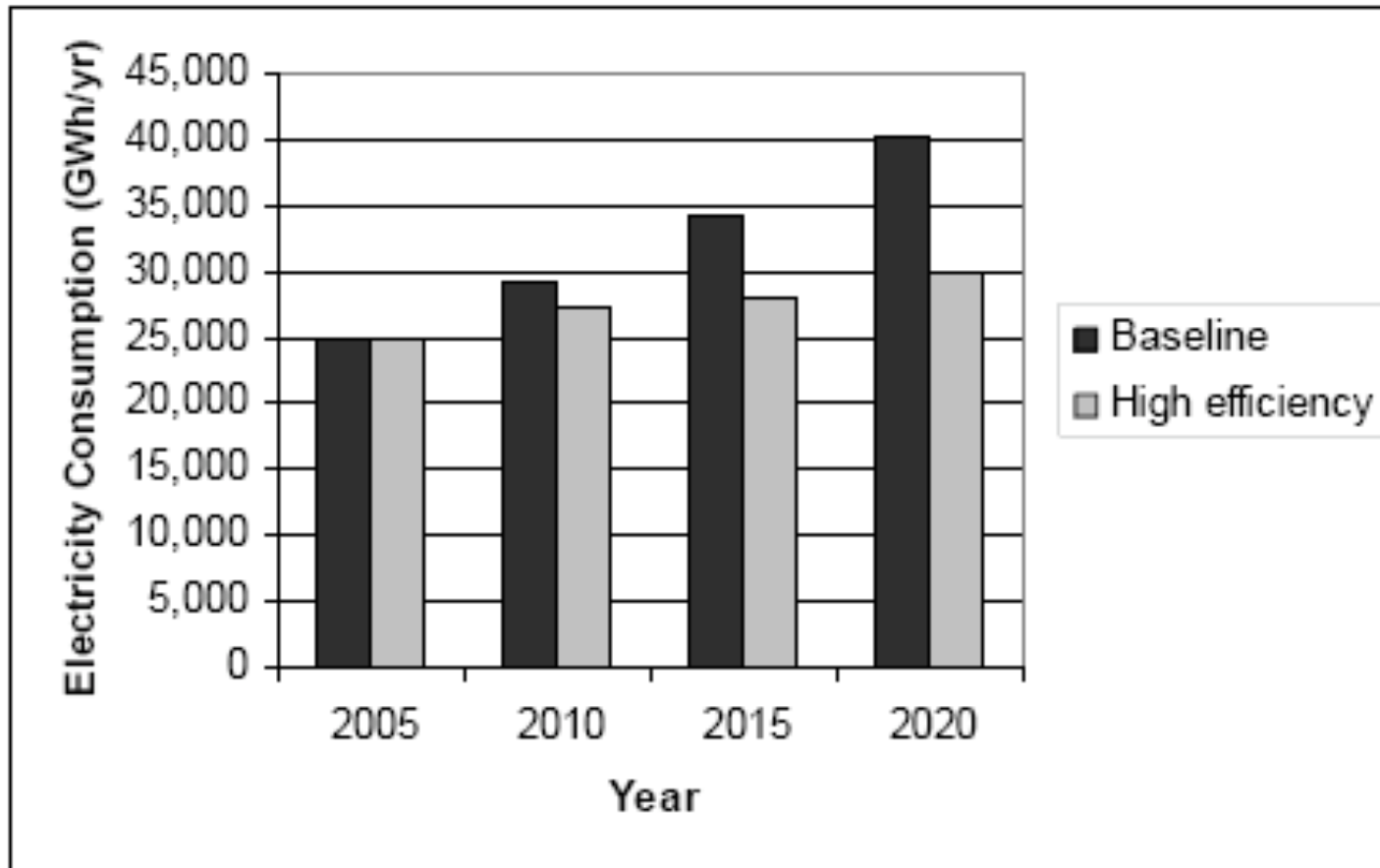


Geller et al, 2007

# UTAH ENERGY EFFICIENCY

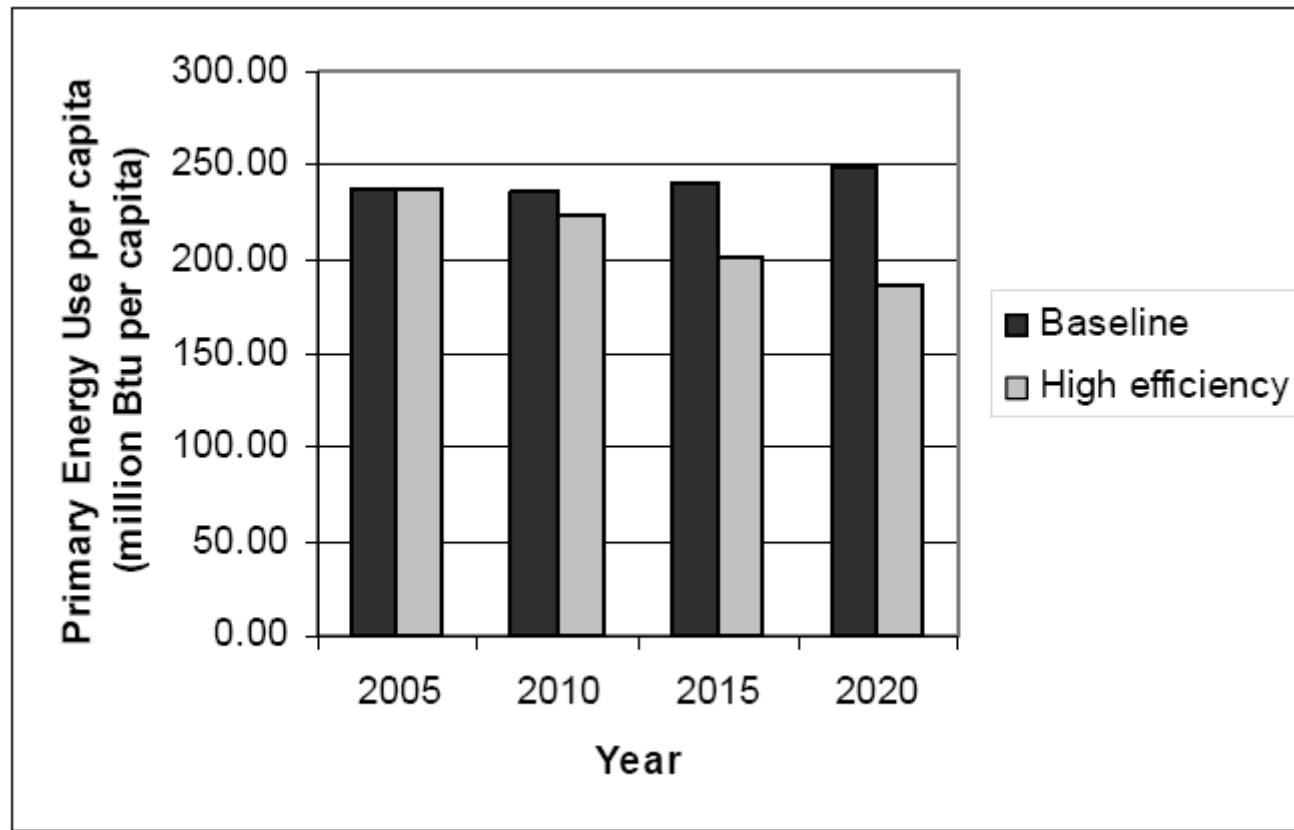
- Opportunity for immediate savings in energy, emissions, and money.
- Individuals implement Energy Efficiency
- Improve Energy Efficiency for Low-income communities
- Energy Efficiency standards for new state buildings and retrofits
- Work with cities and counties to train on new Energy Efficiency Codes
- Improved gas mileage and related improvements in vehicles (California Standard), increased use of mass transit, and
- Energy Efficiency and Blue Sky credits and new renewable resources
- Use PowerForward summer alert for energy demand

## Electricity Consumption by Sector



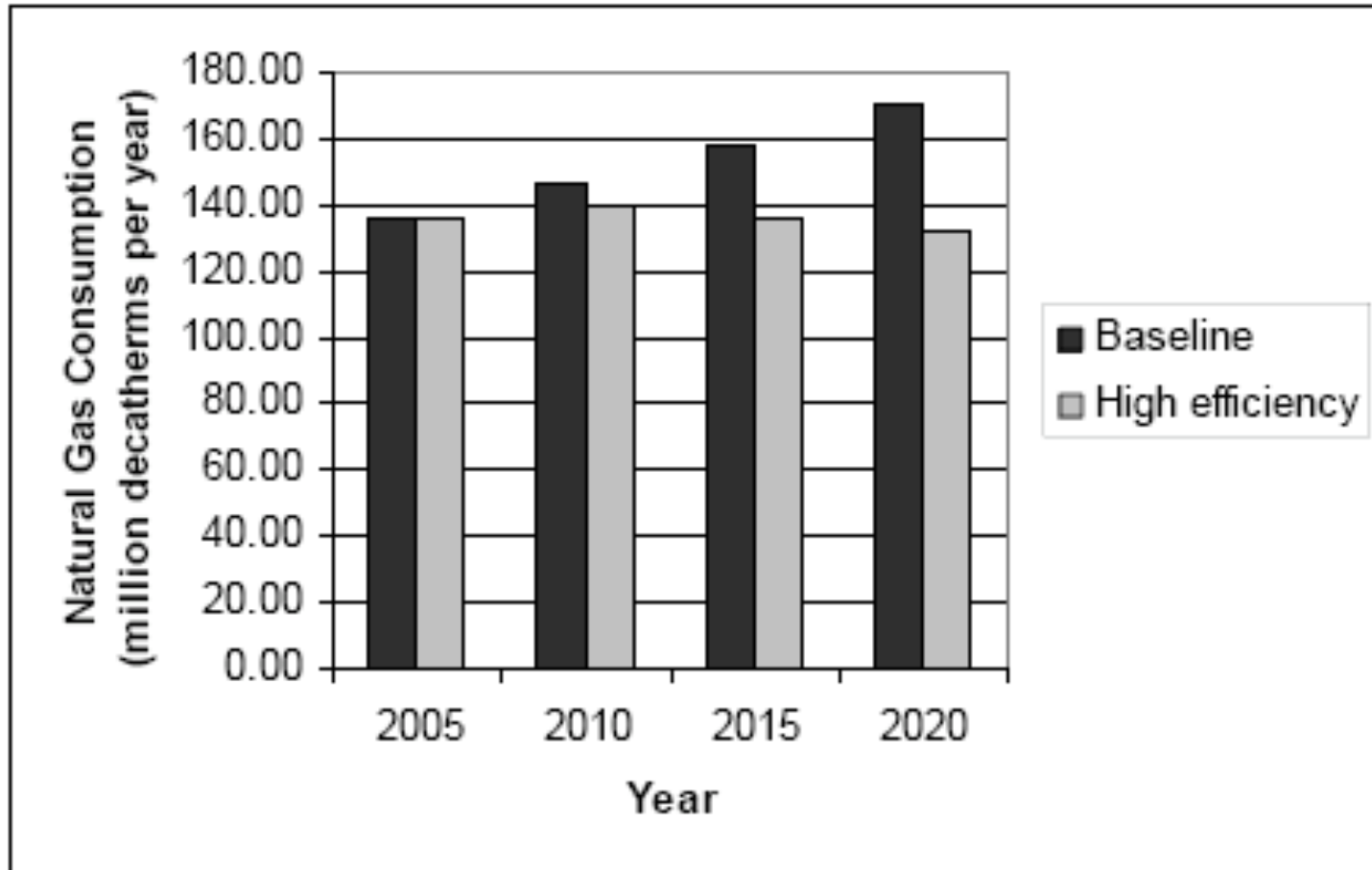
Geller et al, 2007

## Energy Use Per Capita by Scenario



Geller et al, 2007

## Natural Gas Consumption by Scenarios



Geller et al, 2007

# UTAH ENERGY POLICY UCA 63-53b-301

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- Promote development of renewable resources;
- Promote study of nuclear power;
- Promote development of resources and infrastructure reducing dependence on international energy sources;
- Pursue energy conservation, energy efficiency and environmental quality;
- Streamline regulatory processes;
- Encourage expedited federal action; and
- Provide an environment for stable consumer prices.

# Utah Energy Policy – Current Actions

- Promote development of nonrenewable resources
  - “Development of America’s Strategic Unconventional Fuels,” Task Force on Unconventional Fuels
  - USTAR technology development
- Promote development of renewable resources
  - BRAC review of Renewable Energy Initiatives
- Promote study of nuclear power
  - Legislative review through Public Utilities Interim Committee



# **2006 ENERGY REPORT ISSUES**

## **RENEWABLES**

- Assistance with Commercialization would help advance opportunities. Advance opportunities for power and other renewable energy production.
- Assistance with Scale Commercial R&D. Create broader spectrum of resource options.
- Reinstate Corporate Renewable Energy Tax Credit.
- Develop an Alternative Energy Incentive/Fund.
- Additional Administrative Action. Continue support for small scale renewable programs.

# Utah Energy Policy – Current Actions

- Promote development of resources and infrastructure; reducing dependence on international energy sources
  - WGA initiative on energy transmission and transportation corridors
  - Diversification of energy resources; encouraging development of renewable resources
  - Utah Energy Program, Utah Geological Survey

# Utah Energy Policy – Current Actions

- Pursue energy conservation, energy efficiency and environmental quality
  - Improve Energy Efficiency 20% by 2015
  - Blue Ribbon Advisory Council on Climate Change
  - Western Climate Initiative
  - The Climate Registry
- Streamline regulatory processes and encourage expedited federal action
  - Environmental reviews for oil and gas exploration
  - WGA initiative on energy transmission and transportation corridors

# **2006 ENERGY REPORT ISSUES**

## **ENERGY EFFICIENCY**

Opportunities for increased efficiency in  
Transportation

Utilization of public transit

Alternative Fuels, and

Performance Purchasing

# Utah Energy Policy – Current Actions

- Provide an environment for stable consumer prices
  - Diversified energy portfolio
  - Regulatory practices and policies that encourage energy efficiency
  - Development of technologies to reduce environmental impacts
  - Develop energy resources to meet increase demand

# 2006 ENERGY REPORT ISSUES

## ELECTRIC TRANSMISSION

- Additional Electrical Transmission Capacity and Infrastructure is needed in the state and the West
  - Supports rising energy demand and economic growth
  - Provides greater opportunity for resource development
- Resolve barriers to new transmission construction
  - Planning and regional coordination
  - Siting Issues
  - Cost allocation for major projects

# 2006 ENERGY REPORT ISSUES

## ELECTRIC TRANSMISSION (cont.)

- Expand the Electrical Facility Review Board Responsibilities
  - Include independent development projects
  - Provide coordination for siting across public lands
- Fund Study to Evaluate Benefits of Electrical Infrastructure Authority
  - Single repository and facilitator for siting and planning
  - Preferable to special “industrial funds” that subsidize specific projects
- Additional Administrative Action
  - Advisor will work with regional and national entities to define cost allocation options

# **Utah Energy Policy Encourages Economic Development**

- Economic prosperity is linked to availability, reliability, and affordability of consumer energy supply
- Investment will occur when adequate financial returns can be realized



# In Summary

- Diversify Energy Portfolio of Renewables and Nonrenewables
- Improve Energy Efficiency
- Improve Environmental Quality and Reduce Greenhouse Gas Emissions
- Develop Transmission and Transportation
- Encourage Energy Security
- Promote Economic Development
- Maintain Quality of Life

State of Utah  
Governor's Blue Ribbon Advisory Council on  
Climate Change

[www.deq.utah.gov/Issues/Climate\\_Change/index.htm](http://www.deq.utah.gov/Issues/Climate_Change/index.htm)

# Utah Energy Efficiency Strategies: Policy Options

<http://energy.utah.gov/energy>

## Western Climate Initiative

[www.westernclimateinitiative.org](http://www.westernclimateinitiative.org)



THE CLIMATE REGISTRY

[www.theclimateregistry.org](http://www.theclimateregistry.org)